

# **RULES AND REGULATIONS PERTAINING TO AIR QUALITY IN ICE ARENAS**

[R23-1-18-IAQ]

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Health

DECEMBER 1990 (E)

*As Amended:*

FEBRUARY 1991 (T)

**January 2002 (re-filing in accordance with  
the provisions of section 42-35-4.1 of the  
Rhode Island General Laws, as amended)**

## INTRODUCTION

These *Rules and Regulations Pertaining to Air Quality in Ice Arenas [R23-1-18-IAQ]* are promulgated pursuant to the authority conferred under section 23-1-18(6) of the General Laws of Rhode Island, 1956, as amended, and are proposed for the purpose of establishing permissible airborne Carbon Monoxide concentrations in ice arenas.

Furthermore, pursuant to the provisions of sections 42-35-3(c)(3) and (c)(4) of the General Laws of Rhode Island, 1956, as amended, the following issues have been given serious consideration in arriving at these regulations:

- (a) Alternative approaches;
- (b) Overlap and duplication with other state regulations; and
- (c) Economic impact on "small business".

No comments received during and after the public hearing comment period pertained to alternative approach(s) or duplication or overlap with other state regulations. As a result of staff review of comments received prior to and during the comment period, it was determined that one regulation may result in possible economic impact on "small business". Notwithstanding any possible economic impact on "small business", these rules and regulations are adopted in the best interest of public health, safety and welfare and consistent with the statutory mandates placed on the Director of Health.

These rules and regulations shall supersede any previous *Rules and Regulations Pertaining to Air Quality in Ice Arenas* promulgated by the Department of Health and filed with the Secretary of State.

## DEFINITIONS

1.0 Whenever used in these rules and regulations, the following terms shall be construed as follows:

Director - The Director of the Rhode Island Department of Health, or his designee.

Ice Arena - Any building with a roof and partially or fully enclosed sides which contains an ice rink.

NIOSH - The National Institute for Occupational Safety and Health.

Operator - The person designated by the owner as responsible for the day to day operation of the ice arena.

Owner - The person having legal title to property and/or buildings. For purposes of publicly owned property only, the owner shall be defined to be the chief executive officer of the state or municipal agency which owns, leases or controls the use of the property.

Person - Any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, and other State or political subdivision or agency thereof, and the legal successor, representative, agent or agency of the foregoing.

Resurfacing Machine - Any internal combustion engine-powered machine used for modifying the ice rink surface.

## GENERAL PROVISIONS

2.0 **Purpose and Scope.** These regulations provide for regulating the air quality in ice arenas.

2.1 **Applicability.** The requirements of these regulations apply to all owners/operators of ice arenas in which internal combustion engine-powered ice resurfacing machines and/or internal combustion (e.g. gas-fired) heaters or other devices which produce Carbon Monoxide emissions are used.

2.2 **Acceptable Indoor Air Quality.** The owner/operator of an ice arena must maintain acceptable air quality conditions. Such conditions shall be defined as a one hour average air concentration of not more than thirty-five (35) parts of Carbon Monoxide per one million (1,000,000) parts of air by volume (PPM).

## MAINTENANCE OF AIR QUALITY CONDITIONS

3.0 Acceptable methods for maintenance of the required air quality conditions are:

- (a) Proper mechanical adjustment of the internal combustion engine of the resurfacing machine, internal combustion heaters and/or other devices which produce Carbon Monoxide emissions; and
- (b) Proper ventilation of the ice arena; and/or

### 3.0(c)

(c) Any other method approved in writing by the Director.

## DOCUMENTATION OF AIR QUALITY CONDITIONS

- 4.0 The owner/operator of an ice arena must document measurement of indoor air quality conditions on Form ICE-1 (or equivalent), as shown in Appendix A to these regulations.
- 4.1 Whenever the option contained in Section 3.0(a) is utilized as a method of control, the documentation must also include the name of the mechanic(s) and the equipment being used. The owner/operator of the ice arena must also maintain documentation which shows that the mechanic has received formal and/or on-the-job training relevant to the repair and maintenance of the specific ice resurfacing machine(s), internal combustion heaters and/or other Carbon Monoxide producing devices being utilized at the ice arena.
- 4.2 **Public Notification.** All information contained on Form ICE-1 (or equivalent) shall be made available, on reasonable request, to any person with an interest in the operation of the ice arena including, but not limited to, headmasters/school superintendents, league/association officials, referees and coaches. The owner/operator of an ice arena must post copies of Form ICE-1 (or equivalent) in the ice arena foyer or other location that is readily accessible to both ice arena employees and the general public. Alternatively, the owner/operator of an ice arena may post a notice indicating where such information is available for review.
- 4.3 **Report Required.** The owner/operator of an ice arena must submit monthly copies of the data contained on Form ICE-1 (or equivalent) to the Director not later than the fifth day of the following month.

## MEASUREMENT OF AIR QUALITY CONDITIONS

- 5.0 **General Requirement.** The owner/operator of an ice arena shall measure air quality conditions at least once per day. The measurement shall be made: at board height, at the red line, and at a time of maximum frequency of use of the resurfacing machine.
- 5.1 **Methods of Measurement.** Acceptable methods of measuring air quality conditions are:
- (a) Real time Carbon Monoxide level monitor [Ecolyzer or equivalent];
  - (b) Real time Carbon Monoxide level monitor with adjustable action levels and automatic alarm; or
  - (c) Any other method approved in writing by the Director.

### 5.1.1

5.1.1 If a real time Carbon Monoxide level monitor is used:

- (a) The unit shall have a valid calibration, in accordance with the manufacturer's current specifications;
- (b) Calibration records shall include, as a minimum, the following data: name of person performing the calibration, date of calibration, actual reading observed, concentration of calibration gas used, and any problems that could invalidate the calibration; and
- (c) Readings shall be taken at five (5) minute intervals for a one (1) hour period. Each reading, as well as the average of the twelve (12) measurements, shall be recorded on Form ICE-1 (or equivalent).

5.1.2 If a real time Carbon Monoxide level monitor with adjustable action level(s) and automatic alarm is used:

- (a) The unit shall have a valid calibration, in accordance with the manufacturer's current specifications;
- (b) Calibration records shall include, as a minimum, the following data: name of person performing the calibration, date of calibration, actual reading observed, concentration of calibration gas used, and any problems that could invalidate the calibration;
- (c) Units equipped with two (2) alarm levels shall be set at thirty-five (35) PPM of Carbon Monoxide and one hundred (100) PPM of Carbon Monoxide. Units with one (1) alarm level shall be set at thirty-five (35) PPM of Carbon Monoxide; and
- (d) If the unit is not equipped with a permanent logging device (eg: chart recorder), measurements shall be recorded as described in Section 5.1.1(c) of these regulations.

## FAILURE TO MAINTAIN AIR QUALITY

6.0 **Immediate Action Necessary.** Whenever a single reading greater than or equal to two hundred (200) PPM of Carbon Monoxide or a one hour average that is greater than or equal to one hundred (100) PPM of Carbon Monoxide exist in the ice arena, all persons shall be immediately evacuated from the ice rink surface and adjacent areas. The Director shall be immediately notified by telephone of any such action and the ice arena may not reopen until authorized by the Director.

6.1 **Corrective Action Necessary.** Whenever one hour averages in excess of thirty-five (35) PPM of Carbon Monoxide and less than one hundred (100) PPM of Carbon Monoxide exist in the ice arena, immediate corrective action must be taken. Such corrective action may include, but is not limited to, an immediate increase in the ventilation rate and/or an increase in the interval between resurfacing operations. Corrective action shall not be deemed adequate until subsequent measurements of air quality conditions confirm that Carbon Monoxide levels in the ice arena are below thirty-five (35) PPM.

## 6.2

6.2 **Follow-up Action Required.** Whenever the conditions described in Section 6.1 of these regulations occur:

- (a) If skating is allowed to continue, the owner/operator of an ice arena must immediately begin measurement of air quality conditions at one (1) hour intervals until an hourly measurement confirms that Carbon Monoxide levels in the ice arena are below thirty-five (35) PPM. The Director shall be immediately notified by telephone if two (2) consecutive hourly measurements indicate that Carbon Monoxide levels have remained above thirty-five (35) PPM and are increasing.
- (b) When an hourly measurement confirms that Carbon Monoxide levels in the ice arena are below thirty-five (35) PPM, the owner/operator of an ice arena must continue measurement of air quality conditions at least two (2) times per day. These measurements must be made at least two (2) hours apart and must continue until seven (7) consecutive days of monitoring confirm that Carbon Monoxide levels in the ice arena have remained below thirty-five (35) PPM.
- (c) If skating is not allowed to continue, the owner/operator of an ice arena must continue measurement of air quality conditions as described in Section 6.2(b) of these regulations.

6.3 **Report Required.** Whenever the conditions described in Section 6.1 of these regulations occur, a written report must be submitted to the Director within five (5) working days explaining why the methods of air quality control had failed, what immediate corrective action was taken and what action is planned to prevent a recurrence of exceeding the air quality standards.

## COMMUNICATION AND NOTIFICATION

7.0 **Telephone Notifications.** All telephone notifications to the Director that are required by Section 6.0 of these regulations should be made as follows:

Monday through Friday (8:30 A.M. to 4:30 P.M.) (401) 277-3424

Evenings, Holidays and Weekends (401) 621-1600

7.1 **Written Reports.** All written reports to the Director that are required by these regulations, as well as any questions concerning interpretation or implementation of these regulations, should be addressed as follows:

Rhode Island Department of Health  
Office of Environmental Health Risk Assessment  
206 Cannon Building  
Three Capitol Hill  
Providence, RI 02908-5097  
(401) 277-3424

## 8.0

### INSPECTION AND ENFORCEMENT

- 8.0 **Health Department Inspections.** The Director, or his or her designee, or any inspector employed by the Department of Health may inspect an ice arena at a reasonable time, without prior notice, to review the implementation of these regulations or to respond to a complaint of the existence of air quality conditions that are not in compliance with these regulations.
- 8.1 **Compliance and Enforcement.** Violations of these regulations will be handled by the Director in accordance with procedures contained in Sections 23-1-20 through 23-1-25 of the General Laws of Rhode Island, 1956, as amended.

### VARIANCE, PRACTICES AND PROCEDURES, AND SEVERABILITY

#### 9.0 **Variance Procedures.**

- (a) The Director may grant a variance, either upon his own motion or upon request of the applicant, from the provisions of any rule or regulation in a specific case if he/she finds that a literal enforcement of such provision will result in unnecessary hardship to the applicant and that such a variance will not be contrary to the public interest, public health and/or health and safety of the public; and
- (b) A request for a variance shall be filed by an applicant in writing, setting forth in detail the basis upon which the request is made. Upon filing of each request for a variance with the Director, and within thirty (30) days thereafter, the Director shall notify the applicant by certified mail of its approval, or in the case of a denial, a hearing date, time and place may be scheduled if the applicant appeals the denial and in accordance with the provisions of Paragraph 9.1 of these regulations.
- (c) Variances will only be considered with respect to Sections 3.0(c), 5.1(c) and 6.2 of these regulations.

- 9.1 **Rules Governing Practices and Procedures.** All hearings and reviews required under these regulations shall be held in accordance with the provisions of the rules and regulations promulgated by the Rhode Island Department of Health entitled, "Rules and Regulations Governing the Practices and Procedures Before the Rhode Island Department of Health (R42-35-PP)".

- 9.2 **Severability.** If any provision of these rules and regulations or the application to any individual or institution or agency or circumstances shall be held invalid, such invalidity shall not affect the provisions or the application of the regulations which can be given effect, and to this end the provisions of the regulations are declared to be severable.

**APPENDIX A**  
**RHODE ISLAND DEPARTMENT OF HEALTH**  
**ICE ARENA LOG OF AIR QUALITY TESTING**

[illegible]

Section 5.0 of the Rules and Regulations Pertaining to Air Quality in Ice Arenas [R23-1-18-IAQ] requires that air quality be measured at least once per day in ice arenas where internal combustion engines are operated.

Whenever one hour averages in excess of thirty-five (35) PPM of Carbon Monoxide exist in the ice arena, a written report must be submitted to the Director of Health within five (5) working days explaining why the methods of air quality control had failed, what immediate corrective action was taken and what action is planned to prevent a recurrence of exceeding the air quality standards.

Make notation regarding engine maintenance and changes in operation of ventilation system.

**ARENA NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**TIME PERIOD OF LOG:** \_\_\_\_\_

**APPROVED BY:** \_\_\_\_\_  
**[Arena Manager]**

**FORM ICE-1 (11/90)**